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MICROMETRY OF HUMAN RED BLOOD CORPUSCLE.

BY FRANK JUDSON PARKER, PH. B., M. D.

The commonly accepted average diameter of the red blood corpuscle of man is 1-3,200 in. or 7.9 microns, and although some observers have given smaller averages and some have reported larger measurements, no marked distinctions have been discovered between the corpuscles of different races or different nationalties.

The possible, (indeed, the probable), cause of differences reported by various writers is attributed by Dr. M. C. White, Proceedings of American Microscopical Society, 1896, Vol. XVIII., pp. 204, 205, to the different amounts of the corpuscle measured. Some rejecting all the dark border, others measuring one-half the dark border, while others include the whole of the dark border on both sides in their measurements.

Prof. Cabot, in his recent book on Human Blood, calls attention to a statement by GRAM that "Measurements published by observers living in Southern Europe are smaller than those of Northern Europe, viz: Italians, 7 to 7.5 microns; Germans, 7.8 microns; Norwegians, 8.5."

To further investigate this question, at the suggestion of Prof. White, I have made the measurements reported below.

The measurements here reported have been made by the author using Bullock's microscope, with a $\frac{1}{8}$ inch objective made by Spencer and an Abbé condenser, Zentmayer's cobweb micrometer eye-piece and a stage micrometer by Leitz, ruled to 1-100 millimeter. This gave for each turn of the screw of the micrometer 6.85 microns, and as the screw head was graduated to 100 divisions, the micrometer is calculated to measure to 0.0685 microns or about 1-350,000 of an inch.

Each preparation of blood measured was placed upon a glass slide, dried and covered with thin glass.

Blood was measured from the following subjects, viz:

From F. J. Parker	100	Corpuscles
Girl from Finland, age 25, 3 months in America	500	“
Esquimaux girl, came with Peary	500	“
American girl, age 17	500	“
Italian boy, age 17, in America 3 months	500	“

TWO THOUSAND ONE HUNDRED RED BLOOD CORPUSCLES MEASURED BY FRANK JUDSON PARKER, PH. B., M. D., YALE UNIVERSITY.

Source of Blood	Number of Corpuscles Measured	Average Diameters in Microns	Maximum and Minimum by Tens	Maximum and Minimum by Twenties	Maximum and Minimum by Fifties	Maximum and Minimum by Hundreds
American girl, 17 years old.	500	7.90	Max. 8.43 Min. 7.52	Max. 8.40 Min. 7.61	Max. 8.76 Min. 8.14	Max, 8.03 Min. 7.79
Italian boy, 17 years old. In America three months.	500	7.99	Max. 8.48 Min. 7.62	Max. 8.47 Min. 7.62	Max. 8.47 Min. 7.62	Max. 8.12 Min. 7.89
Girl from Finland, age 25 years in America three months.	500	7.89	Max. 8.28 Min. 7.61	Max. 8.24 Min. 7.62	Max. 7.96 Min. 7.76	Max. 7.96 Min. 7.76
Esquimaux girl, about 14 years old, came with Lieut. Peary.	500	8.07	Max. 8.63 Min, 7.65	Max. 8.43 Min. 7.63	Max. 8.26 Min. 8.06	Max. 8.16 Min. 8.04
F. J. P. age 23.	100	7.81	Max. 8.05 Min. 7.68	Max. 7.90 Min. 7.66	Max. 7.86 Min. 7.76	
Five persons as above.	2100	7.95	Max. 8.63 Min. 7.52	Max. 8.47 Min. 7.61	Max. 8.47 Min. 7.62	Max. 8.16 Min. 7.76

Here we find that the blood of the Italian boy (7.99 microns) is a trifle larger than that of the American girl (7.90 microns); that of the girl from Finland, (7.89 microns), not as large as that of the Italian, whereas on Gram's theory it ought to be larger, and that of the Esquimaux girl (8.07 microns), though a trifle larger than any of the others, is not as large as Gram reports for the Norwegian, though coming from a higher latitude.

The result of this investigation fails to show any marked distinction that could be attributed to difference of climate or nationality.

NOTE.—When Dr. Parker had just finished the measurements here reported he was called to the service of the United States with the Connecticut Naval Reserves and I have copied his table of measurements and put the paper in shape for presentation to the American Microscopical Society. M. C. WHITE, M. D.